Earth Day 2005

The Lower Cape Fear Celebration of Earth Day will be held on **Saturday, April 23rd** from **noon-6pm** at **Hugh MacRae Park**. This year's theme is "The Power of Information. Turn It On!" Live music, food vendors, exhibitors, mini-workshops, equipment displays and a Kids Eco-Zone are just a few of this year's highlights. Come join the fun, learn something new and visit our booth for a chance to win a free clean water t-shirt! *Storm Water Services is a proud sponsor of this event.*

PUBLIC SERVICES
Richard A. King
Director

STORM WATER SERVICES
343-4777
David B. Mayes, P.E.
Manager

Jennifer D. Butler
Outreach & Education Coordinator

Jim Quinn
Senior Engineering Technician

Matt Hayes, AICP
Planner/GIS Analyst

Anthony Thomas
Engineering Technician

Alicia Herrmann
Engineering Technician

Pat Higgins
Administrative Support

STORM WATER OPERATIONS
341-4646
Harvey London
Drainage Manager

BILLING & COLLECTIONS
341-7806

City of Wilmington
Storm Water Services
PO Box 1810
Wilmington, NC 28402-1810
(910) 343-4777

www.ci.wilmington.nc.us/pubservices/stormwater/stormwater.htm

STORM WATER WATCH

Annual Water Quality Issue

2005 Winter/Spring Report

A Publication of the City of Wilmington ~ Storm Water Services

Rain Barrel & Compost Bin SALE!

Sat., May 14, 2005
8am-4pm
Location: TBA

Compost Bin
80-gallon, $39.50
For more info, contact Jason Hale, 341-4373 or JHale@nhcgov.com

Rain Barrel
65-gallon, $80
For more info, contact Shelly Miller, 789-6032 or shelly.miller@nhswcd.org
Pre-order rain barrels by May 9th!

Inside This Issue

Composting to Keep Gardens Green and Waterways Clean

According to N.C. Cooperative Extension, 116.4 million tons of food and yard wastes are burned, buried or improperly disposed of each year in North Carolina. This waste takes up valuable landfill space, increases air pollution and allows harmful pollutants to enter our waterways. In addition, many counties, including New Hanover County, no longer allow yard wastes to enter the landfill. Fortunately, composting is an environmentally friendly way to accomplish waste reduction and turn yard, food and other household wastes into rich soil material for gardens and landscape beds.

Materials that can be composted fall into two categories: wet and dry. Wet materials include fruit and vegetable peels, coffee grinds and filters, tea bags, egg and peanut shells, garden wastes, plant trimmings and table wastes. Dry materials include dry leaves and grass clippings, straw, sawdust, tissue paper and shredded newspaper. Avoid composting meat, fish, dairy products, sauces, grease, oil, fat, pet waste, diseased plants, seed-laden weeds, bones and pine straw.

Sunlight, oxygen and moisture are necessary components for organic matter breakdown, so compost piles should be turned frequently. Rain, or occassional watering, should provide the necessary moisture. Also, kitchen wastes should be buried in the center of the pile to reduce the chance of flies, animals, and odors. Finished compost material may smell sweet and be cool and crumbly to the touch, like rich soil.

Composting bins can be constructed or purchased to suit your needs and your yard. Bins can be made by hand or purchased at local stores or on the internet. Composting "drums" rotate easily on a base and help "turn" the compost materials without a lot of time and effort. If you are short on the time necessary to tend to a compost pile, you can simply pile excess leaves and grass into a bin and allow the materials to decompose on their own. Compost piles or bins should be located where they won't interfere with backyard activities.

How does composting protect water quality?

If left on the lawn, grass clippings decompose and act as a natural fertilizer and soil conditioner. However, when these nutrient rich materials are inappropriately blown into storm drains or ditches, they can lead to high nutrient levels, severe algae blooms, and low dissolved oxygen levels in waterways. Composting provides a suitable solution with many benefits for you and the environment. Applying finished compost to your landscape beds and gardens improves water absorption, helps the soil hold nutrients which reduces the need for fertilizer applications, and makes for tasty fruits and vegetables. Composted material also promotes healthier plants which are less susceptible to disease and insects. Composting reduces the amount of material going to the landfill and reduces pollution in our local waterways.

By establishing your own compost pile and educating others on the process and benefits, you can be the solution to water pollution. For detailed information on how to compost, or to view composting piles/bins, visit the New Hanover Cooperative Extension, 6206 Oleander Drive, or type "composting" into your internet search engine.

Submitted by Nikki Seibert, 319 Grant Intern

The State of Our Waterways ~ *2003-2004 Wilmington Watersheds Report*

The following water quality summary was furnished by Dr. Michael Mallin of the UNCW Center for Marine Science. Dr. Mallin is the lead scientist for the Wilmington Watersheds Project. Water quality data are presented from a watershed perspective, regardless of political boundaries. For more information, visit: http://www.uncwil.edu/cmsr/aquaticecology/laboratory/

Barnards Creek – There was only one station sampled in this watershed during 2004, lower Barnard's Creek at River Road. This site had no algal bloom or BOD problems; it had fair water quality in terms of fecal coliform counts but poor water quality as judged by excess turbidity and low dissolved oxygen. It also had the highest suspended solids, ammonium, total nitrogen and total phosphorus levels among all the local watersheds.

Bradley Creek – Turbidity was not problematic during 2003-2004. Dissolved oxygen was good to fair at all sites, except the branch at College Acres (BC-CA), where it fell below 5.0 mg/L on three occasions during summer. Elevated nitrogen and phosphorus levels enter the creek in both the north and south branches; one minor algal bloom occurred in the south branch (BC-SB) and one major bloom occurred in the creek at College Acres. Fecal coliform bacterial counts were only sampled at BC-CA, where contamination was excessive during six of the seven samples collected in 2004.

Burnt Mill Creek – A sampling station on Burnt Mill Creek at Princess Place had no turbidity or suspended solids problems, but had substandard dissolved oxygen during all visits from May through September. There was one moderate algal bloom in June 2004. This station also had poor microbiological water quality, exceeding the standard for human contact in five of seven samples. The effectiveness of Ann McCrary wet detention pond on Randall Parkway as a pollution control device, was poor during 2004. While the pond led to a significant reduction in fecal coliform bacteria and an increase in dissolved oxygen, it failed to reduce nutrient concentrations including ammonium, nitrate, total nitrogen, orthophosphate and total phosphorus. Several water quality parameters indicated a subsequent worsening of the creek where it exited the pond to the downstream Princess Place sampling station. Fecal coliform bacteria and low dissolved oxygen are the primary problems in Burnt Mill Creek.

Greenfield Lake – The three tributaries of Greenfield Lake (near Lake Branch Drive, Jumping Run Branch and Lakeshore Commons Apartments) all suffered from severe low dissolved oxygen problems and the in-lake stations (GL-2340, GL-YD and GL-P) had low dissolved oxygen periodically. All three of the tributaries also had frequent high fecal coliform counts and maintained geometric mean counts in excess of the state standard for human contact waters. Station GL-P, at the Park, had high fecal coliform counts on three of the seven occasions sampled and very low dissolved oxygen during summer. The stream near Lakeshore Commons also maintained high nitrate and phosphate concentrations. The lake again experienced algal blooms at times, with several blooms exceeding the N.C. State Standard of 40 µg/L of chlorophyll *a* and a three-month duckweed bloom occurred near the Park. In general, Greenfield Lake continues to suffer from fecal coliform bacterial contamination, algal blooms and low dissolved oxygen problems.

Hewletts Creek – The tidally-influenced stations in this watershed had generally low turbidity levels in 2003-2004. Two major algal blooms occurred in the north branch (NB-GLR) in summer 2004, with dissolved oxygen concentrations generally good to fair at tidal sites. Fecal coliform counts were low at the lower sites, moderate at the mid-creek sites and high in terms of the NC human contact standard of 200 CFU/100 mL at the north and middle branches, but moderate at the south branch. Since January 2004, five non-tidal sites have been sampled in the Hewletts Creek watershed. One site is PVGC-9, draining Pine Valley Country Club. This stream had no dissolved oxygen or turbidity problems, moderate nutrient levels and had one severe algal bloom in summer 2004. However, six of the seven months sampled showed excessive fecal coliform counts, a general increase over previous years. The other sites are being sampled to gain background information on the water quality of streams entering (DB-1, DB-2, DB-3) and exiting (DB-4) a proposed constructed wetland/future park area known as the Dobo site, draining into the headwaters of Hewletts Creek. The input and output streams to the Dobo site had no turbidity or algal bloom problems, but low dissolved oxygen was an issue at DB-1 and all sites had excessive fecal coliform problems. DB-1 also had comparatively high ammonium, total nitrogen and total phosphorus problems.

Howe Creek – Five stations were sampled in Howe Creek in 2003-2004. The lower creek maintained good water quality. In the upper creek there were a few problems with low dissolved oxygen and occasional algal blooms. Fecal coliform bacteria counts were low near the ICW, moderate mid-creek and high in the uppermost two stations during 2003-2004. After several years of improving water quality, in 2003-2004 the upper two stations showed a doubling of fecal coliform counts from 2001-2003 levels. This is a concern especially because Howe Creek was previously designated as an Outstanding Resources Water by the State of North Carolina.

Smith Creek – Smith Creek (sampled at SC-CH, at Castle Hayne road) had moderate water quality problems as reflected by several parameters. Turbidity and elevated suspended sediments occurred on occasion, but algal blooms or high BOD were not problematic. Excessive fecal coliform bacteria counts occurred on two of seven sampling occasions in 2004. Low dissolved oxygen problems occurred during most summer months.

Whiskey Creek – Whiskey Creek had relatively high nutrient loading but generally low chlorophyll *a* concentrations in 2003-2004. There were a few incidents of low dissolved oxygen at two of the five stations sampled this year, but high turbidity was not a problem. Fecal coliform bacteria were not sampled in 2003-2004 in this creek.

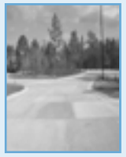
Halyburton Park Educates the Community about the Environment

Halyburton Park Nature Preserve is the City of Wilmington's newest park located on 58 acres off of 17th Street in the heart of Wilmington. The park aims to *"educate the public about the natural world around them, encourage a greater awareness of the need for protecting the environment and inspire citizens to take an active role in its conservation."*

There are many environmental features that make Halyburton Park unique. Both permanent and temporary ponds are present, providing a diverse habitat for many plant and animal species. The temporary ponds, or vernal ponds, are home to many frogs and salamanders. These ecosystems, dry in the summer months, provide protection from their natural predator, fish.

Halyburton Park also serves as a model of environmental management. Many new features have been incorporated, including stormwater best management practices (BMPs), which are mechanisms that work to protect water quality through treatment or storage of polluted runoff. Located in the Barnards Creek Watershed, which drains into the Cape Fear River, these practices are extremely vital to the health of the creek. The BMPs in park's Stormwater Demonstration Site serve as examples of what the community can do in their own backyard to protect water quality and habitat.

The features incorporated into the Stormwater Demonstration Site include:



- Frog Pond: This small pond, located in front of the main building, provides an essential habitat for frogs. Amphibian populations are in decline due to loss of such habitat.
- Rain Garden/Butterfly Garden: Rain gardens are shallow depressions designed to catch rain water. They improve water quality by trapping, filtering and absorbing runoff. Butterfly-attracting plants are also incorporated to create habitat in the rain garden.
- Bird Garden: Located behind the events center, the bird garden includes birdfeeders, bird houses and bird-attracting plants. It also offers a place for birds to hide and scavenge.
- Compost Bin: A compost bin allows food scraps and yard waste to decompose into rich soil, while reducing household waste. Bins can be purchased or easily constructed.
- Pervious Parking Lot: The pervious parking lot on the east side of the park allows rain water to penetrate and helps filter toxins from vehicles to decrease storm water pollution. Gravel is a relatively inexpensive pervious surface that homeowners can use.
- Rain barrels: Halyburton Park features two rain barrels. Rain barrels help reduce runoff, conserve water and provide cheap, clean water for landscaping.
- Pet Waste Stations: Pet waste contains bacteria, parasites and viruses that are health hazards and indicators of water pollution. Pet waste is a major pollutant in our area and must be disposed of properly by utilizing the Park's four pet waste stations.

The Stormwater Demonstration Site is a collaborative effort between the City of Wilmington and the New Hanover Soil & Water Conservation District. Portions of this project were made possible by a grant from the Caterpillar Foundation, Z. Smith Reynolds Foundation and the NC Foundation for Soil and Water Conservation, Inc. The grant funds, obtained by the New Hanover Soil & Water Conservation District, will be used to purchase 2 rain barrels, 8 stormwater BMP educational signs and 30 native plant identification signs.

Halyburton Park Nature Preserve is a fantastic educational tool for the entire community. Future park plans include an outdoor education program, environmental field days, backyard conservation workshops for the community and much more. Stop by and take a nature walk today!

Submitted by Jill Harlow, City of Wilmington Parks, Recreation & Downtown Services & Shelly Miller, New Hanover Soil & Water Conservation District